

CLAIMS

1. A needlestick prevention device for an injection device (1) having a hollow needle (2) comprises a sheath having a first member (9) for attachment to the injection device (1) and a second member (10) slidable longitudinally relative to the first member (9) to expose or to cover the needle (2), and spring means (11) biasing the second member (10) to cover the needle (2), the first and second members (9,10) having interengaging guide means (13) and locking means (14), characterised in that the guide means (13) include a first guide part (23) operative to allow free longitudinal sliding movement of the second member (10) relative to the first member (9), and a second guide part (24) operative on movement by manual relative rotation of the first and second members (9,10) and following release of a force urging the second member (10) to expose the needle (2), in which the spring means (11) urges the second member (10) to cover the needle (2) and to operate the locking means (14) to retain the second member (10) covering the needle (2).

2. A needlestick prevention device according to claim 1, in which the guide means (13) comprises at least one groove means (15) on one of the first and second members (9,10), and a corresponding projection (17) on the other of the members which slides in the groove means (15).

3. A needlestick prevention device according to claim 2, in which two groove means (15) and projections (17) are provided, arranged in diametral opposition.

4. A needlestick prevention device according to any preceding claim, in which the second member (10) slides inside the first member (9).

5. A needlestick prevention device according to claim 4, in which the or each groove means (15) is provided on the radially exterior surface of the second member (10) and the or each projection (17) on the radially interior surface of the first member (9).

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6. A needlestick prevention device according to any preceding claim, in which in the or each guide means (13) the first guide part comprises a first groove (23) extending longitudinally of the second member (10).

10 7. A needlestick prevention device according to any preceding claim, in which the second guide part comprises a second groove (24) extending longitudinally of the second member (10).

15 8. A needlestick prevention device according to claim 6 and claim 7, in which the second groove (24) is parallel to the first (23), and spaced from it such that a relative rotation of 30° of the members (9,10) will move the projection (17) from the first groove (23) into the second groove (24).

20 9. A needlestick prevention device according to claim 7 or claim 8, in which the locking means comprises a permanent locking recess (33) formed as part of the second groove (24), in which the projection (17) is received.

25 10. A needlestick prevention device according any of claims 6 to 9, in which the first groove (23) is provided with a temporary locking recess (30) in which the projection (17) is received.

30 11. A needlestick prevention device according to claim 10, in which in the temporary locking position the second member (10) is slightly less

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extended from the first member (9) than in the permanent locking position.

12. A needlestick prevention device according to any of claims 2 to 11,
5 in which the or each groove means (15) has a further longitudinal groove (25) with an initial locking recess (38).

13. A needlestick prevention device according to any of claims 2 to 12,
10 in which the grooves (23, 24, 25) and projections (17) are so shaped as to allow relative rotation of the first and second members (9, 10) in only one direction.

14. A needlestick prevention device according to claim 13, in which
15 the grooves (23, 24, 25) have one radial wall (27) and one curved wall (28), with the projections (17) being of complementary shape.

15. A needlestick prevention device according to any preceding claim,
20 in which the spring means comprises a compression spring (11) acting between the inner end of the second member (10) and an abutment (44) on the first member (9).

16. A needlestick prevention device according to claim 15, in which
25 the spring (11) also provides an additional locking mechanism when the second member (10) is in its permanent locking position.

17. A needlestick prevention device according to claim 16, in which
30 the additional locking mechanism comprises an oversize turn (45) of the spring (11), adapted to be received in a radial groove (46) in the first member (9) when the second member (10) is in its permanent locking position.

18. A needlestick prevention device according to claim 17, in which the spring (11) is also arranged so that the oversize turn (45) tends to enlarge on relative rotation of the two members (9, 10).

5 19. A needlestick prevention device according to any preceding claim, in which the injection device is a syringe (1) additionally comprising a barrel (6).

20. A needlestick prevention device according to claim 19, in which
10 the first member (9) is attached to the syringe (1) by a luer slip connection to a hub (7) at the forward end of the syringe barrel (6).

21. A needlestick prevention device according to claim 19, in which
the first member (9) is attached to the syringe (1) by a luer lock
15 connection to a hub (7) at the forward end of the syringe barrel (6).